

## REMARKS

Applicants have thoroughly considered the Examiner's remarks and acknowledge the Examiner's indication that claim 16 is allowed, claims 17-32 would be allowable if rewritten or amended to overcome the 35 U.S.C. § 112 rejections, and claim 46 would be allowable if rewritten in independent form to include the limitations of the base claim and any intervening claims. Claims 17, 31, 33, and 46 have been amended and claims 1-15 have been cancelled by this Amendment A. If the Examiner feels, for any reason, that an interview would expedite prosecution of this application, applicants invite the Examiner to telephone the undersigned attorney. Claims 16-46 are presented in the application for further consideration.

### Election/Restriction

Applicants affirm the election of claims 16-46 for examination made during a telephone conversation between Robert Bain (Registration No. 36,736) and Examiner Chong Kim on May 26, 2006. Accordingly, applicants have cancelled claims 1-15 from consideration at this time, without prejudice to their patentability, and expressly reserve the right to file one or more divisional applications directed to these claims.

### Claim Rejections under 35 U.S.C. § 112

Claims 17-32 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Applicants have amended claims 17 and 31 to more clearly set forth the invention. In particular, applicants have deleted the term "substantially" from claims 17 and 31 as suggested by the Examiner. Applicants therefore submit that amended claims 17 and 31 are in compliance with the second paragraph of 35 U.S.C. 112. Claims 18-30 and 32 depend from amended claim 17 and, thus, are likewise in compliance with the second paragraph of 35 U.S.C. § 112.

### Claim Rejections under 35 U.S.C. § 103

Claims 33-37, 39, 44, and 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of U.S. Patent No. 5,485,745 to Rademaker et al. (Rademaker), U.S. Patent No. 6,041,860 to Nazzal et al. (Nazzal), and U.S. Patent No. 5,996,711

to Ohmer (Ohmer). As discussed below, applicants submit that even when combined as suggested by the Office, the cited references fail to teach or suggest all the features of applicant's claimed invention. Thus, *prima facie* obviousness cannot be established. (See MPEP 2142 and 2143).

Rademaker discloses a method and apparatus for sensing conditions within a borehole. In particular, Rademaker discloses a downhole inspection tool for selective attachment to the end of a length of coiled tubing that can be used in connection with the maintenance and servicing of oil, gas, geothermal and injection wells. The Office acknowledges that Rademaker does not explicitly disclose a probe for use with the housing for measuring a penetration of the probe on the bottom of the borehole, but asserts that Nazzal discloses a probe for use with the housing for measuring penetration on the bottom of the borehole. (See Office action at page 5). Applicants respectfully disagree.

The portion of Nazzal cited by the Office (column 5, lines 64-65) has nothing to do with measuring probe penetration of a probe on a bottom of a borehole to determine an amount of a deposit at the bottom of the borehole as claimed and described in the present application. Although, Nazzal discloses that the tool 200 may also" include ... sensors for determining the depth of the tool in the wellbore 22" (see column 5, lines 53-57), determining the depth of a tool is clearly distinguishable from a probe measuring a penetration of the probe on a bottom of the borehole and determining an amount of a deposit at the bottom of the borehole. In fact, the Office acknowledges that Nazzal does not explicitly state a probe for use with the housing for measuring a penetration of the probe on the bottom of the borehole, but asserts that Ohmer remedies this deficiency by disclosing a probe for determining an amount of shale. (See Office action at page 6).

However, the only reference to the term "shale" in Ohmer is with respect to a gamma-ray log being simultaneously run in combination with ultrasonic scanning to indicate the amount of shales contained in the formation that is penetrated by the cased well and, thus, to help define the position of a future lateral branch using geological markers. (See Column 4, line 34-38). As defined in Webster's Collegiate Dictionary (Eleventh Edition), shale is "a fissile rock formed by the consolidation of clay, mud, or silt, [and] has a finely stratified or laminated structure, and is composed of minerals essentially unaltered since deposition." Again, applicants submit that this is distinguishable from detecting an amount of deposit on a bottom of the borehole as claimed

and described in the present application. As described in the application, to develop the required end bearing capacity, the drilled shaft should be inspected so that undesirable debris may be removed before concrete placement. (See application page 2, paragraph 0005). For example, the Florida Department of Transportation requires that at least 50 percent of the base of each shaft have less than 0.5 inches (13 mm) of sediment at the time of concrete placement, and that the maximum depth of sedimentary deposits or any other debris at any place on the base of the shaft not exceed 1.5 inches (40 mm). (See Id). In other words, the term deposit refers to debris such as sedimentary deposits located the bottom of the borehole, and not a structured rock formation. Notwithstanding applicants' belief that claim 33 is distinguishable from the cited references, claim 33 has been amended to more clearly set forth the invention.

As disclosed in the present application, in one embodiment of the invention, such probes measure penetration resistance of the bottom soil, or ultrasound or similar penetrating sensors to gather information below surficial sediments. (See application page 23, paragraph 64). To this end, applicants have amended claim 33 to recite, in part, "a probe for use with the housing for measuring a penetration resistance of the probe on a bottom of the borehole and determining an amount of a deposit at the bottom of the borehole as a function of the measured penetration resistance." Thus, even when combined as suggested by the Office, Rademaker, Nazzal and Ohmer fail to teach or suggest each and every element of amended claim 33. As such, independent claim 33 is allowable over the cited references.

The Examiner further cites the combinations of Rademaker, Nazzal and Ohmer further in view of U.S. Patent No. 5,754,220 to Smalser (Smalser) and Rademaker, Nazzal and Ohmer further in view of U.S. Patent No. 5,123,492 to Lizanec, Jr. (Lizanec) in rejecting various dependent claims. However, none of the above references are cited for, nor do any of these references teach or suggest a probe for use with the housing for measuring a penetration resistance of the probe on a bottom of the borehole and determining an amount of a deposit at the bottom of the borehole as a function of the measured penetration resistance. As such, independent claim 33 is allowable over the cited references, whether considered separately or together.

Claims 34-45 depend from claim 33 and are believed to be allowable for at least the same reasons as the independent claim from which they depend. With respect to the allowable subject matter of claim 46, applicants have rewritten this claim in independent form, incorporating all of

the limitations of the base claim 33. As such, applicants believe claim 46 is in condition for allowance.

In view of the foregoing, applicants submit that, in addition to claim 16, claims 17-32 are now in condition for allowance having overcome the rejection under 35 U.S.C. § 112. Moreover, claims 33-45 are believed to be allowable over the cited art for the reasons discussed above. Claim 45 has been rewritten as suggested by the Examiner. Applicants therefore respectfully request allowance of pending claims 16-46.

It is felt that a full and complete response has been made to the Office action and, as such, places the application in condition for allowance. Such allowance is hereby respectfully requested. Although the prior art made of record and not relied upon may be considered pertinent to the disclosure, none of these references anticipates or makes obvious the recited invention. The fact that Applicants may not have specifically traversed any particular assertion by the Office should not be construed as indicating Applicants' agreement therewith.

**The Applicants wish to expedite prosecution of this application. If the Examiner deems the claims as amended to not be in condition for allowance, the Examiner is invited and encouraged to telephone the undersigned to discuss making an Examiner's amendment to place the claims in condition for allowance.**

The Commissioner is hereby authorized to charge any deficiency or overpayment of any required fee during the entire pendency of this application to Deposit Account No. 19-1345.

Respectfully submitted,



Robert O. Enyard, Jr., Reg. No. 57,780  
SENNIGER POWERS  
One Metropolitan Square, 16th Floor  
St. Louis, Missouri 63102  
(314) 231-5400